

TEXAS DEPARTMENT OF TRANSPORTATION

TxDOT: Open For Business

TOLL FEASIBILITY ANALYSIS



The *New* Texas Roadmaps



Texas has some *big transportation challenges*, but we have *big plans* that are producing *big results*. The Texas Department of Transportation has three key publications that will not only keep you up to speed, they'll put you in the driver's seat.

TxDOT has a Plan is our strategic vision,

TxDOT: Open for Business shows you how to build projects faster,

and

Keep Texas Moving is our free bimonthly e-newsletter that lets you know what's going on as it happens.

You can find all these publications and Keep Texas Moving subscription information at:

www.TxDOT.gov – keyword: Strategic Plan

www.TxDOT.gov – keyword: Open for Business

www.TxDOT.gov – keyword: Keep Texas Moving



Urban areas want to unlock gridlock on highways that crisscross major metropolitan centers in Texas. Rural leaders want to ensure that economic development opportunities associated with transportation system improvements do not take the fast lane past their communities. All are concerned about safe travel for their families and friends.

There are solutions to these transportation challenges. But the great demand for timely and efficient improvements across our great state calls for new problem-solving approaches, new ways of doing business. In the past, the Texas Department of Transportation (TxDOT) had the resources to manage the entire state's transportation system. Our future needs will have to be met through cooperative partnering between local communities and TxDOT.

The good news is that individual communities can now be in the driver's seat when it comes to deciding how best to meet local transportation needs. TxDOT is open for business and ready to get to work with you.

Our Goals

We have developed five well defined goals to help us achieve our mission and make it easy for the public to evaluate our effectiveness:

1. Reduce *congestion*
2. Enhance *safety*
3. Expand *economic opportunity*
4. Improve *air quality*
5. Increase *the value of transportation assets*



We prefer tolls to an increase in the gasoline tax. We are confident in the commitment of TXDOT and the Legislature that any monies raised by tolls and any excess funds or up-front monies are going to stay in the region and will be used entirely for transportation projects.

B. Glen Whitley
Judge, Tarrant County

The Texas Department of Transportation's Texas Turnpike Authority Division (TTA), is responsible for promoting toll road development in Texas. To help with this, TTA has developed a toll feasibility analysis process to screen and evaluate candidate toll projects throughout Texas. Through this analysis, candidate toll projects are identified and advanced forward for implementation.

A toll feasibility analysis compares a project's total cost estimate to its potential economic value, which is typically expressed as the project's potential to support the sale of bonds. Total project cost and amount of bonding capacity may ultimately be used as elements of a project's finance plan. This plan identifies funding sources and the potential bonding capacity of a candidate toll project. If a finance plan can be successfully developed, the project may be toll viable.

TxDOT's toll feasibility analysis is modeled after the three-level industry standard for traffic and revenue studies. The analysis begins with a conceptual analysis, which screens the project for fatal flaws before beginning a more detailed level of study. Additional analyses include:

Level 1 – Sketch, Level 2 – Intermediate, Level 3 – Investment Grade study.

TOLL FEASIBILITY ANALYSIS TASKS

The process is essentially the same for all levels of analysis. However, just as traffic and revenue (T&R) forecasts become more reliable in intermediate and investment grade studies, project concepts, cost estimates and schedules are also refined to a greater degree of certainty with each level of toll feasibility analysis.

1 [Estimate candidate toll project costs by project development component/activity including:

- Preliminary Engineering – Environmental Documentation and Schematics
- Final Engineering – Design/Plans, Specifications and Estimates
- Right of Way Acquisition
- Environmental Mitigation
- Utility Relocation
- Construction
- Construction Engineering and Inspection

2

[Determine a reasonable project implementation schedule and inflate project cost components to scheduled years of activity.

3

[Identify a desired project opening date based on project implementation schedule and/or funding considerations.

4

[Develop a tolling scheme for toll collection.

5

[Forecast T&R, including toll traffic volumes, toll transactions and gross revenue for a 40-year period beyond the project opening date.

6

[Estimate toll project operating and maintenance (O&M) costs.

7

[Determine net revenue after O&M costs.

8

[Compute bonding capacity as the total present value of net revenue stream, in the year the money is borrowed, typically using a 1.5 debt coverage ratio and assumed bond market rate of return.

9

[Estimate bond issuance costs and interest earned during construction.

10

[Compute total funds available from bonds after deducting issuance costs and adding interest earned during construction.

11

[Compute the portion of project costs that can be covered through the sale of bonds.

12

[Compute project costs that must be covered by other sources, if necessary.

PRE – DATA COLLECTION																				
DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Develop/Define Improvement Concepts (Including Tolling Concepts)																				
					Forecast Traffic and Revenue															
							Estimate Project Costs													
												Perform Preliminary Revenue Analysis								
SUBMIT DRAFT FEASIBILITY ANALYSIS																				

LEVEL 1 – SKETCH

This analysis further evaluates and refines toll project alternatives (cross-section options, tolling concepts and toll collection methods) and project implementation scenarios as they affect toll revenue. Project alternatives and implementation scenarios are developed to optimize use of available funds to provide suitable toll feasibility capacity levels and meet revenue objectives. The project's economic value and project alternatives, such as potential bond funding, are refined to support finance plan development and production. Financial and revenue constraints in the development of staged implementation scenarios are also considered.

Level 1 - Sketch Advancement Criteria

- Potential toll revenues provide an acceptable portion of the funding required to implement a project, and a finance plan has been developed for implementation
- TTA recommends evaluating alternatives that would improve revenue potential
- Upon district request to further evaluate the project or alternatives as a toll project

- If anticipated revenues are very high, it is possible to move directly to Level 3 - Investment Grade study

LEVEL 2 – INTERMEDIATE

Intermediate analyses refine toll traffic forecasts and revenue estimates to strengthen and gain approval for the project finance plan and provide traffic operations support for the final design process. The traffic and revenue for this level of analysis includes some level of data collection to validate travel demand forecasts, desired travel patterns and economic development assumptions.

Level 2 - Intermediate Advancement Criteria

- Traditional funding sources cannot pay for construction, but bond funding can cover a significant portion of funding shortfall. The project can be advanced to an Investment Grade analysis only upon the approval of TTA Director or the TxDOT Chief Financial Officer.
- This may be the final study level if public monies (e.g. TxDOT funds, state bonds, etc.) and/or

other local sources can fund the project without public or private sector bonds.

LEVEL 3 – INVESTMENT GRADE

This analysis refines traffic forecasts and revenue estimates for accuracy, which promotes investor confidence in project financing using public or private sector bonds. It also finalizes funding arrangements in the project finance plan, and serves as a prospectus of toll road revenue performance for bond rating agencies.

Level 3 - Investment Grade Advancement Criteria

- The project proceeds to the bond market as approved by the Texas Transportation Commission and after the revenue generation potential is certified. At this stage, bond funds available from toll revenue used to finance a candidate toll project are based on a bond rating agency's assessment. The available bond funds may lead to successful certification of a toll viable finance plan.

FEASIBILITY ANALYSIS LEVEL	FEASIBILITY ANALYSIS TYPE	FEASIBILITY ANALYSIS RESPONSIBILITY	TRAFFIC & REVENUE (T&R) FORECAST RESPONSIBILITY	OBJECTIVE
SKETCH	Level 1	TTA	T&R Consultant	Refines/evaluates most promising strategies for a candidate toll project or corridor. Considers production, financial/revenue constraints and, occasionally, a phased implementation plan including "staged" scenarios.
INTERMEDIATE	Level 2	TTA	T&R Consultant	Supports final design process for toll road development and refines T&R estimates to strengthen the toll project(s) or system's finance plan.
INVESTMENT GRADE	Level 3	TTA	T&R Consultant	Refines T&R forecasts so accuracy is suitable for evaluating a project as a potential investment using public or private sector bonds. This analysis is the instrument finalizing funding arrangements in the project(s) or system's finance plan, and serves as a prospectus of toll road revenue performance for bond rating agencies.

LEVEL 1 – SKETCH / PRE – DATA COLLECTION/REVIEW PREVIOUS ANALYSIS			
DAY	1-10	11-21	22-30
	Update/Refine Improvement Concepts		
		Forecast Traffic and Revenue	
		Refine Project Costs	
			Perform Preliminary Revenue Analysis
SUBMIT DRAFT FEASIBILITY ANALYSIS			

LEVEL 2 – INTERMEDIATE / PRE – DATA COLLECTION/REVIEW PREVIOUS ANALYSIS				
DAY	5-30	35-75	75-110	115-135
	Update/Refine Improvement Concepts			
	Traffic Counts/O&D Surveys			
		Develop/Refine Traffic Demand Model		
			Refine Project Costs	
			Forecast Traffic and Revenue	
				Perform Financial Analysis
SUBMIT DRAFT FEASIBILITY ANALYSIS				

GLOSSARY

Bonding Capacity (Potential)

Estimated ability of a candidate toll project to support the sale of bonds based on anticipated toll collections and steady pay-off of bond debt.

Debt Service

The series of interest and principal payments required on a debt over a period of time.

Electronic Toll Collection (ETC)

Toll system where account information on a TxTag® installed in the car is read by a receiving antenna at the toll gantry. The toll is electronically deducted from a pre-paid toll account.

Financial Constrained Schedule

The first year in which a project can be opened to traffic due to the time required and funds available to fully develop a project. For example, the time needed to prepare environmental documents and schematics, gain environmental clearance, prepare plans specifications and estimates, acquire right of way, relocate utilities, mitigate environmental impacts and construct a project based on when funds are available to complete these project development activities.

Issuance Costs

Certain fees and costs incurred in connection with bond issuance. These costs will vary depending on the type of financing sought, financing structure used and other factors. For conceptual purposes, issuance costs are calculated as a percentage of a project's bond capacity.

Municipal Bonds

A debt security issued by a state, municipality or county in order to finance its capital expenditures.

Net Bond Issuance

Bonding capacity less issuance costs (see Issuance Costs).

Net Present Value (NPV)

Present value of an investment's future net cash flows less the initial investment.

Operations & Maintenance (O&M)

For toll projects, operations costs refer to the cost of collecting tolls. Maintenance includes both highway maintenance and all costs associated with day-to-day operations.

Pass-Through Financing

A financial arrangement where a developer agrees to finance, design, construct, maintain and/or operate a highway project for TxDOT. TxDOT reimburses the cost to the developer with a per mile or per vehicle mile fee instead of assessing tolls on facility users.

Preliminary Feasibility Tool (PFT)

Developed to assist TxDOT Districts in assessing and screening candidate toll projects to allow only the most viable projects to move toward higher levels of study.

Production Constrained Schedule

The first year in which a project can be opened to traffic due to time required to fully develop a project. For example, the time needed to prepare environmental documents and schematics, gain environmental clearance, prepare plans specifications and estimates, acquire right of way, relocate utilities, mitigate environmental impact and construct a project, regardless of funding.

Ramp-up

The initial phase of a project's revenue cycle immediately following construction when users become familiar with the project and are willing to pay a toll for using the facility. It is during this phase that the strength of a project's revenue stream is established.

Rating Agency

An organization that assesses and issues opinions regarding the relative credit quality of bond issues. The three major municipal bond rating agencies are Fitch Investor Service, Moody's Investors Services and Standard & Poor's.

Revenue Bond

A type of municipal bond where principal and interest are secured by revenues such as charges or rents paid by users of the facility built with the proceeds of the bond issue.

Revenue Constrained Schedule

Special case of financially constrained schedule that applies to toll projects. Indicates the earliest date in which projected traffic will generate enough net revenue to sell bonds. In other words, a project that cannot generate positive net revenues after O&M for 20 years is "revenue constrained" and toll revenue will not help cover construction costs for 20 years.

Shortfall

An amount which is lower than (i.e. worse than) expected or required.

Toll Feasible

A candidate toll project that is able to generate enough revenue to pay for the cost of collecting tolls. This includes toll collection operations cost and equipment installation, including ETC software/hardware, conduit and fiber, gantries and supporting computerized communications.

Toll Feasibility Analysis

A screening analysis process used to determine whether a project, group of projects or corridor can generate net revenues after O&M costs have been covered and what portion of project cost can be covered by bonding the net revenues from tolls.

Toll Viable

Net toll revenue after operations and maintenance costs is sufficient to sell bonds, and the portion of project cost funded through bonds is sufficient to cover the portion of project development and construction costs not covered by public or other sources of funds.

Traffic & Revenue (T&R) Study

A special traffic forecasting and revenue estimation study conducted for toll roads. A T&R study forecasts toll and non-toll traffic and estimates toll transactions and gross revenue generated from tolls.

Travel Demand Model (TDM)

A computer-based tool used to determine what impact a collection of transportation investments would have on future travel conditions and air quality both in the near- and short-term.

Video Tolling

Tolling system that uses cameras to capture an image of a license plate and adjacent parts of the vehicle and sends the data to a back office of a Customer Service Center for processing. Vehicle owners are mailed a monthly statement with tolls charged for using a facility.

HOW TO GET STARTED

TxDOT is "Open for Business" and we're ready to help you improve traffic flow and safety in your community. The first call you make is to Doug Woodall, our Director of Turnpike Planning and Development. You'll work in concert with him and with the TxDOT professionals in your area who know about these mobility tools and will be your partners in this process.

We want to thank you for your interest and commitment to improving the transportation network in your community and the entire Lone Star State.

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